Méthode des tableaux

Méthode des tableaux (sans variable libre)

Règles de clôture et règles analytiques

$$\frac{\bot}{\odot}\odot\bot \qquad \frac{\neg\top}{\odot}\odot\neg\top \qquad \frac{P \qquad \neg P}{\odot}\odot$$

$$\frac{\neg\neg P}{P}\alpha\neg\neg \qquad \frac{P\Leftrightarrow Q}{\neg P,\neg Q\mid P,Q}\beta\Leftrightarrow \qquad \frac{\neg(P\Leftrightarrow Q)}{\neg P,Q\mid P,\neg Q}\beta\neg\Leftrightarrow$$

$$\frac{P\land Q}{P,Q}\alpha\land \qquad \frac{\neg(P\lor Q)}{\neg P,\neg Q}\alpha\neg\lor \qquad \frac{\neg(P\Rightarrow Q)}{P,\neg Q}\alpha\neg\Rightarrow$$

$$\frac{P\lor Q}{P\mid Q}\beta\lor \qquad \frac{\neg(P\land Q)}{\neg P\mid \neg Q}\beta\neg\land \qquad \frac{P\Rightarrow Q}{\neg P\mid Q}\beta\Rightarrow$$

$$\frac{\exists x. P(x)}{P(c)} \delta_{\exists}, c \text{ frais} \qquad \frac{\neg \forall x. P(x)}{\neg P(c)} \delta_{\neg \forall}, c \text{ frais}$$

$$\frac{\forall x. P(x)}{P(t)} \gamma_{\forall \text{inst}} \qquad \frac{\neg \exists x. P(x)}{\neg P(t)} \gamma_{\neg \exists \text{inst}}$$

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Méthode des tableaux (avec variable libre, destructif)

 δ/γ -règles $\frac{\exists x. P(x)}{P(f(X_1 \mid X_n))} \delta_{\exists}, \begin{array}{c} f \text{ frais,} \\ X_i \text{ var. lib.} \end{array} \frac{\neg \forall x. P(x)}{\neg P(f(X_1 \mid X_n))} \delta_{\neg \forall}, \begin{array}{c} f \text{ frais,} \\ X_i \text{ var. lib.} \end{array}$ $\frac{\neg \exists x. P(x)}{\neg P(X)} \gamma_{\neg \exists M}$ $\frac{\forall x.P(x)}{P(X)} \gamma_{\forall M}$ $\frac{\forall x. P(x)}{P(t)} \gamma_{\forall inst}$ $\frac{\neg \exists x. P(x)}{\neg P(t)} \gamma_{\neg \exists inst}$ Appliquer σ à l'arbre s'il existe dans la branche deux littéraux K et $\neg L$ t.q. $\sigma = mgu(K, L)$

Méthode des tableaux (avec variable libre, non destructif)

δ/γ -règles

$$\frac{\exists x. P(x)}{P(f(X_1, \dots, X_n))} \delta_{\exists}, f \text{ frais,} \frac{\neg \forall x. P(x)}{\neg P(f(X_1, \dots, X_n))} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(f(X_1, \dots, X_n))} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais,} \frac{\neg P(f(X_1, \dots, X_n))}{\neg P(X_n)} \delta_{\neg \forall}, f \text{ frais$$

Méthode des tableaux (non destructif, avec ϵ -termes)

Méthode des tableaux (non destructif, avec ϵ -termes)

δ/γ -règles $\frac{\exists x. P(x)}{P(\epsilon(x). P(x))} \delta_{\exists} \qquad \frac{\neg \forall x. P(x)}{\neg P(\epsilon(x). \neg P(x))} \delta_{\neg \forall}$ $\frac{\forall x. P(x)}{P(X)} \gamma_{\forall M} \qquad \frac{\neg \exists x. P(x)}{\neg P(X)} \gamma_{\neg \exists M}$ $\frac{\forall x. P(x)}{P(t)} \gamma_{\forall inst} \qquad \frac{\neg \exists x. P(x)}{\neg P(t)} \gamma_{\neg \exists inst}$

Exemple

- Preuve de : $(\forall x. P(x) \lor Q(x)) \Rightarrow P(a) \lor Q(a)$;
- Réfutation : $\neg((\forall x.P(x) \lor Q(x)) \Rightarrow P(a) \lor Q(a))$;
- Premières règles $(\alpha_{\neg \Rightarrow}, \alpha_{\neg \lor}) : \forall x. P(x) \lor Q(x), \neg P(a), \neg Q(a).$

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